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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,567	05/10/2001	Gerhard Gille	MO-6323/STA-	6933

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EXAMINER

WILKINS III, HARRY D

ART UNIT

PAPER NUMBER

1742

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8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/831,567

Applicant(s)

GILLE ET AL.

Examiner

Harry D Wilkins, III

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ;

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. The previous action contained a typographical error in that the heading paragraph of the rejection of claims 10-14 cited that the rejection grounds were under 35 USC 102(b). However, it is clear from the bold heading above it, the statute cited and from the rejection itself, that the rejection is actually based on 35 USC 103. Applicants, however, responded to the rejection as if it were based on 35 USC 102(b). Therefore, in the interest of providing Applicant's an opportunity to respond to the rejection correctly, the finality of the previous action is withdrawn, and a corrected rejection is applied.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alonso et al (XP-000874467).

Alonso et al teach the invention substantially as claimed. Alonso et al teach (see abstract) a method of forming tungsten carbides that includes gas-phase carburization of tungsten precursor compound (tungsten trioxide) at temperatures of 700-1100°C, which overlaps the claimed temperature range of 850 to 950°C. The examples disclosed by Alonso et al contain 39, 22 and 0% CO₂. Though Alonso et al do not teach

Art Unit: 1742

that the CO₂ content is above the Boudouard equilibrium content, based on the disclosure in the specification in Example 1 (page 8), 3% CO₂ is above this value, thus, 39 and 22% are also above the Boudouard equilibrium content.

However, Alonso et al do not teach that the carbon activity is between 0.4 to less than 1.

The specific examples disclosed by Alonso et al have carbon activities, calculated from Applicant's formula on page 3 of the specification that are 0.026 (61 wt% CO), 0.077 (78 wt% CO) and essentially infinity (100 wt% CO). Thus, Alonso et al teach a broad range for the carbon activity that encompasses the claimed range. Changes in temperatures, concentrations or other process conditions of an old process do not impart patentability unless the recited ranges are critical, i.e., they produce a new and unexpected result. In re Aller et al (CCPA 1955) 220 F2d 454, 105 USPQ 233. The carbon activity was a known result effective variable because Alonso et al varies it (by means of differing CO/CO₂ ratios) to achieve different results.

Applicant can overcome this rejection by showing that superior results are obtained only within the claimed range, and that outside of the claimed range, the superior results are not obtained. If the Applicant can show, through experimental data, that at values on either side of the claimed range of the carbon activity, such as 0.3 and 1.1, then this rejection would be overcome.

Regarding claim 11, see above discussion of carbon activity.

Art Unit: 1742

Regarding claim 12, Alonso et al teach (see page 145) that powders are produced at 900 and 1100°C and are shown in Figure 8. Therefore, Alonso et al teach that the carburization occurs at 900°C.

Regarding claim 13, Alonso et al teach (see abstract) that the carburization treatment time is 6 hours.

Regarding claim 14, Alonso et al teach (see abstract) that the precursor material is tungsten trioxide.

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alonso et al (XP-000874467) in view of Felten et al (FR 2,294,133).

The teachings of Alonso et al are discussed above in paragraph 3. Alonso et al do not teach that after the powder is carburized, it is subjected to a heat treatment at 1150-1800°C.

Felten et al (FR 2,294,133) teach (see page 2) that the reaction $\text{WO}_3 + 4\text{C} \rightarrow \text{WC} + 3\text{CO}$ proceeds at 1200-1500°C. Thus, if treated at this temperature, any WO_3 would be converted to WC.

Therefore, it would have been obvious to one of ordinary skill in the art to have heat treated the powder of Alonso et al at 1150-1800°C as claimed in order to ensure that all of the precursor WO_3 has been converted to WC.

Response to Arguments

5. Applicant's arguments filed 27 January 2003 have been fully considered but they are not persuasive. Applicant has argued that Alonso et al teach away from the present invention by teaching a preferred reduction-carburization using only CO. However,

Art Unit: 1742

Alonso et al teaches a broad range that encompasses Applicant's claimed range.

Alonso et al teach a broad range of a CO-CO₂ mixture that contains 0-39 vol% CO₂. It would have been within the expected skill of a routineer in the art to have optimized the CO/CO₂ ratio within the range disclosed by Alonso et al to maximize the conversion of WO₃ to WC. Applicant also argued that the after-heat treatment would have been expected to cause an increase of particle size of the WC-powder. This assertion is unsupported by facts. However, if Applicant can provide a factual basis for this assertion (i.e.-a reference that teaches that a heat treatment at a temperature above the carburization temperature (or at 1150-1800°C) would cause the WC-powder to grow), the rejection would be overcome.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

*Art Unit: 1742

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 703-305-9927. The examiner can normally be reached on M-Th 6:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Harry D Wilkins, III
Examiner
Art Unit 1742

hdw
January 30, 2003

ROY KING 
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700